

We claim:

1. A method for producing semiconductor laser components,  
which comprises:

providing a cooling element having an electrically insulating  
carrier that is formed as a plate having a main surface which  
is covered by a metal coating;

structuring the metal coating to form a plurality of chip  
mounting areas;

fitting a plurality of semiconductor laser chips on the  
plurality of the chip mounting areas; and

subdividing the cooling element into a plurality of  
semiconductor laser components that each include at least one  
of the plurality of the semiconductor laser chips and a part  
of the cooling element.

2. The method according to claim 1, which comprises providing  
the carrier with a ceramic material.

3. The method according to claim 1, which comprises:

providing the carrier with a plurality of layers in which one of the plurality of the layers is adjacent the main surface; and

providing at least the one of the plurality of the layers that is adjacent to the main surface as an electrically insulating layer.

4. The method according to claim 1, which comprises constructing the carrier with a material selected from the group consisting of AlN and BN.

5. The method according to claim 1, which comprises configuring the plurality of the chip mounting areas in a matrix form.

6. The method according to claim 1, which comprises performing the structuring step by etching the metal coating.

7. The method according to claim 1, which comprises providing at least some of the plurality of the chip mounting areas with a surface treatment.

8. The method according to claim 1, which comprises providing the metal coating with a plurality of layers.

9. The method according to claim 1, which comprises providing the metal coating with copper.

10. The method according to claim 1, which comprises:

before performing the fitting step, providing the plurality of the chip mounting areas with a plurality of connecting pads;  
and

performing the fitting step by configuring the plurality of the semiconductor laser chips on the plurality of the connecting pads.

11. The method according to claim 10, which comprises providing the plurality of the connecting pads with AuSn.

12. The method according to claim 11, which comprises before performing the fitting step, covering the plurality of the connecting pads with an electrically conductive adhesive material.

13. The method according to claim 10, which comprises before performing the fitting step, covering the plurality of the connecting pads with an electrically conductive adhesive material.

14. The method according to claim 13, which comprises providing the electrically conductive adhesive material as a solder coating.

15. The method according to claim 1, which comprises performing the fitting step by soldering on the plurality of the semiconductor laser chips.

16. The method according to claim 1, which comprises performing the fitting step by soldering on the plurality of the semiconductor laser chips using a hard solder.

17. The method according to claim 1, which comprises forming interconnect structures on the main surface between individual ones of the plurality of the chip mounting areas.

18. The method according to claim 1, which comprises:

opposite the main surface, forming a plurality of metal surfaces on the carrier; and

associating the plurality of the metal surfaces with the plurality of the chip mounting areas.

19. The method according to claim 1, which comprises providing the cooling element with a thermal coefficient of

expansion that is matched to a thermal coefficient of expansion of the plurality of the semiconductor laser chips.

20. The method according to claim 1, which comprises before the structuring step, forming weak points between the plurality of the chip mounting areas.

21. The method according to claim 20, which comprises forming the weak points by performing a process selected from the group consisting of scratching, milling, and laser ablation.

22. The method according to claim 1, which comprises providing the plurality of the semiconductor chips as GaAs laser diodes.

23. The method according to claim 1, which comprises providing the plurality of the semiconductor chips as high-power GaAs laser diodes.

24. The method according to claim 1, which comprises before performing the subdividing step, fitting a plurality of optical elements, which are associated with the plurality of the semiconductor laser chips, to the cooling element.

25. The method according to claim 1, which comprises in between the fitting step and the subdividing step, testing the plurality of the semiconductor laser chips.

26. The method according to claim 25, which comprises performing the testing step by including a test of an optical functionality of the plurality of the semiconductor laser chips.

27. The method according to claim 25, which comprises performing the testing step by including a burn-in cycle of the plurality of the semiconductor laser chips.

28. The method according to claim 25, which comprises performing the testing step by including a quality selection of the plurality of the semiconductor laser chips.

29. The method according to claim 25, which comprises performing the testing step by simultaneously testing at least some of the plurality of the semiconductor laser chips.